

## REMARKS

Upon entry of this paper, claims 12 and 17-23 have been amended, claim 14 has been cancelled, and no claims have been added as new claims. Thus, claims 1-13 and 15-28 are presently pending in this application. No new matter has been added. The cancellation of claim 14 should in no way be construed to be an acquiescence to any of the rejections stated. Claim 14 is being cancelled solely to expedite the prosecution of the present application. Applicant reserves the option to further prosecute the same or similar claims in the instant or a subsequent patent application.

### Drawing Objections

The drawings were objected to under 37 CFR 1.83(a) as not showing module components listed in the Office Action. The statute referred to in the objection states that conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be illustrated in the drawing in the form of a graphical drawing symbol or labeled representation.

Applicants respectfully submit that the claims refer to a “module”, which is further specified in the dependent claims as having the possibility of being any one of the items listed in the Office Action. The “module” is depicted in **FIGS. 2A**, and **3**. The “module” is further defined in the specification as including, “optical amplifiers, bandpass filters, channel add devices, channel drop devices, demultiplexers, multiplexers, interleavers, and attenuators.” *see* Specification, page 8, and “amplifiers, bandpass filters, channel add devices, channel drop devices, dispersion compensation modules, demultiplexers, multiplexers, interleavers, and attenuators.” *see* Specification, page 10.

Accordingly, Applicants respectfully submit that the itemized conventional features are disclosed in the description as required by CFR 1.83. Thus, Applicants respectfully request reconsideration and withdrawal of this objection.

**Claim Rejections under 35 U.S.C. §112**

*Claims 17-23*

Claims 17-23 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for the reasons stated in the Office Action.

Claims 17 through 23 have been amended to indicate what specific device the claimed module takes when carrying out the specified operation. The Office Action states that the Applicants have failed to show in the drawings and in the specification how each of the claimed operations occurs. Applicants respectfully submit that the configuration of the optical sub-assembly for processing an optical signal that is claimed does not change, except that the module can take a number of different forms of conventional optical component as listed. Thus, the figures indicate the configuration of the sub-assembly as including a “module”, the location of the module in the sub-assembly does not change regardless of whether it is, for example, an optical amplifier, bandpass filter, channel add device, channel drop device, demultiplexer, multiplexer, dispersion compensation module, interleaver, or attenuator. The specifics with regard to how each of the optical components are connected is well known in the industry, especially by those of ordinary skill in the art.

Thus, with regard to how each of the operations is carried out, Applicants have amended the claims to more precisely indicate the specific version of the module that is utilized in each instance. Applicants believe these amendments provide more clarity in the claim language. Accordingly, withdrawal of all 35 U.S.C. §112 rejections is respectfully requested.

### **Summary of Invention in Pending Application**

Prior to discussing the substantive rejections below, applicant wishes to provide a brief summary of some of the features relating to what he regards as his invention as claimed in the pending application. This Summary is not intended to convey all of the inventive aspects of the present invention. Instead, this Summary is intended to merely point out some of the features that have been identified as relevant to the rejections stated in the Office Action.

The present claimed invention is generally directed to a method and apparatus for providing an optical networking scheme that provides *working* and *protect* paths to address failures of optical lines and components. An optical sub-assembly has an optical signal separated into a first sub-band and a second sub-band. A working path and a protect path each propagates through the optical network. The *working path operates only in one sub-band and the protect path operates only in the other sub-band*. A first module disposed along the working path affects the working path, and a second module disposed along the protect path affects the protect path.

### **Claim Rejections under 35 U.S.C. §102**

*Claims 1-3, 7-8, 11-15, 19-20, and 23-28*

Claims 1-3, 7-8, 11-15, 19-20, and 23-28 were rejected under 35 U.S.C. §102 as being anticipated by US Patent No. 6,549,315 to Kakui (Kakui). This anticipatory rejection is respectfully traversed in view of the following comments.

Kakui is generally directed toward an inputted multiplexed optical signal that is separated by an optical branching section into C-band multiplexed optical signal and L-band multiplexed optical signal, and the C-band multiplexed optical signal and L-band

multiplexed optical signal are optically amplified by a C-band optical amplifier and an L-band optical amplifier, respectively. The amplified optical signals are combined by an optical combiner, and thus combined optical signal is outputted therefrom. The backward ASE light generated in the L-band optical amplifier upon optical amplification is blocked by an optical filter. The filter is disposed between the optical amplifier and the optical branching section, so as to be prevented from traveling backward and being inputted to and amplified by the C-band optical amplifier. This is done in an attempt to restrain deterioration of noise characteristics the deterioration of noise characteristics.

As is understood by one of ordinary skill in the art, a path in a network is generally defined as the route between any two points or nodes. Generally speaking, path networking involves the use of two diverse routes in the network between the source and destination. The source bridges its traffic onto each of the diverse paths, and the destination selects between the two paths. One of the paths is conventionally designated as the working path or the active path, and the other of the paths is designated as the protect path, or backup path. A failure at a point along the working path causes the destination to switch to the protect path. Thus, the communication between the source and destination is interrupted only very briefly, if at all. For some applications, the two path configuration (working and protect) is required. Various configurations in networks attempt to provide working and protect paths using different priorities, such as 1+1, 1:1, and 1:N, which each provide for different variations of whether and how protect paths are maintained or reserved. In addition, there are industry accepted standards (such as Synchronous Optical NETWORK, "SONET", and Synchronous Digital Hierarchy, "SDH") that provide guidelines relating to the provision and use of working and protect paths in optical networks.

Applicants respectfully submit that Kakui fails to disclose, or even recognize, the concept of working and protect paths, and specifically fails to disclose a "... first sub-band of the optical signal carried only by the working path . . . [and] a second sub-band

of the optical signal carried only by the protect path . . .” See claim 1 (*see also* claims 12 and 24 for similar *working* and *protect* path language).

To constitute an anticipation under 35 U.S.C. §102, all the claimed elements must be found in exactly the same situation and united in the same way to perform the identical function in a single unit of the prior art. That is, anticipation can only be established by a single prior art reference teaching each and every element of the claimed invention.

The assertion that Kakui describes the provision of working and protect paths can only be based on the improper use of hindsight in the evaluation of Kakui in view of the pending claims. Kakui fails to disclose all claimed elements of the pending application. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

*Claims 12 and 24*

Claims 12 and 24 were rejected under 35 U.S.C. §102 as being anticipated by US Patent No. 6,356,384 to Islam (Islam). Claim 12 has been amended to more clearly identify the claimed invention. Applicant further distinguishes the claimed invention from Islam according to the following remarks.

Islam is generally directed toward a method of broadband amplification that divides an optical signal of wavelength of 1430 nm to 1620 nm at a preselected wavelength into a first beam and a second beam. The first beam is directed to at least one optical amplifier and produces an amplified first beam. The second beam is directed to at least one rare earth doped fiber amplifier to produce an amplified second beam.

Islam fails to anticipate claims 12 and 24 because Islam does not disclose all elements of the claimed invention. Islam provides no recognition of the concept of working and protect paths, and specifically does not disclose “separating the optical

signal into a first sub-band supporting a working path and a second sub-band supporting a protect path". *See* amended claim 12, *see also* claim 24. As previously discussed, the concept of working and protect paths is one that includes requirements that certain standards be met, such as those laid out in SONET and SDH. Islam merely describes a C/L band splitter, which is only one element of the claimed invention. To state that Islam describes the creation of working and protect paths is to improperly use hindsight in the evaluation of the Islam patent in view of the pending claims.

Absent full disclosure of all of the claimed elements, Applicants respectfully submit that Islam fails to anticipate the pending claims. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

In light of the above comments, applicant respectfully submits that the claims of the present invention are not anticipated by, and are therefore in condition for allowance over, the cited documents.

**Claim Rejections under 35 U.S.C. §103**

*Claims 1-2, 7-8, 12-14, and 19-20*

Claims 1-2, 7-8, 12-14, and 19-20 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over US Patent No. 6,288,811 to Jiang, et al., (Jiang) in view of US Patent No. 6,480,328 to Shimojoh (Shimojoh). This rejection is respectfully, but most strenuously traversed in view of the following comments.

Jiang is generally directed toward the provision of a flexible WDM optical communication system in which each optical channel of the WDM optical communication signal can simultaneously accept multiple data formats. In one embodiment, the WDM optical system includes an optical waveguide having an optical add-drop multiplexer to selectively add and/or drop one or more optical channels to/from the WDM signal carried on the waveguide. A first source of data imparts information onto a first optical channel in a packet format while a second source of data imparts information onto the first optical channel in a time division multiplexed format. An optical network interface electrically communicates with the data sources, placing the data from these sources onto the first optical channel which is generated from an optical source such as a laser. An optical path carries the optical channel from the optical source to the optical add-drop multiplexer. From there, it is multiplexed onto the optical waveguide, merging with the other optical channels of the WDM optical signal.

Shimojoh is generally directed toward an optical amplifier and an optical amplification method, which performs amplification of optical signals of two wavelength bands, and which can deal with restrictions on installation space, power consumption and the like, for an optical amplifier. Optical circulators are respectively connected to opposite ends of an optical amplifying means, and optical signals of the respective wavelength bands of a first wavelength band and a second wavelength band are input and output to the optical amplifying means via each of the optical circulators so that the

propagation directions of the respective optical signals of the respective wavelength bands are in mutually opposite directions inside a rare earth element doped fiber. As a result, the optical signals of the respective wavelength bands can be collectively amplified with a simple configuration using a single rare earth element doped fiber.

Applicants respectfully submit that there is no suggestion in the Jiang and Shimojoh references, and otherwise no motivation to combine these references in the manner asserted in the Office Action. The Office Action itself relies upon the motivation of one skilled in the art. However, the motivation stated in the Office Action appears not to relate to the pending claims, and additionally is not supported by the citation provided. Specifically, the Office Action states that, “[o]ne of the ordinary would have been motivated to employ the above steps so that the individual bands can be amplified for suppressing noise figure which deteriorated by insertion loss component (Col. 1, line 66 – Col. 2, line 15).” *See* OA, page 7.

As the Examiner is aware, unless a *prima facie* case of unpatentability with respect to known facts is established, Applicant is not obligated to proffer any evidence of nonobviousness. To establish a *prima facie* case there must be some suggestion or motivation, either in the prior art or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine multiple reference teachings. There must then be a reasonable expectation of success. Finally, the prior art reference or references (when combined) must teach or suggest all the claimed limitations.

Applicant respectfully submits that no *prima facie* case has been established because there is no documented suggestion or motivation, either in the references or in the general knowledge, for their combination. Accordingly, Applicants respectfully request the reconsideration and withdrawal of this rejection.



*Claims 3-6, 9-11, 15-18, and 21-28*

Claims 3-6, 9-11, 15-18, and 21-28 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over US Patent No. 6,288,811 to Jiang, et al., (Jiang) in view of US Patent No. 6,480,328 to Shimojoh (Shimojoh) and in further view of US Patent No. 6,388,805 to Spock (Spock). This rejection is respectfully, but most strenuously traversed in view of the following comments.

As previously discussed, there is no motivation for the combination of Jiang and Shimojoh. Absent the original combination of Jiang and Shimojoh, the addition of Spock cannot make the pending claims obvious. There remains no prima facie showing of obviousness.

Applicant therefore respectfully submits that Jiang, Shimojoh, and Spock fail to teach or suggest every characteristic of Applicants' claims 1, 12, and 24. Dependent claims 2-11, 13, 15-23, and 25-28 are also allowable based on their dependency on the aforementioned independent claims in addition to their own claimed characteristics. Applicant further submits that all pending claims of the present invention are not obvious with respect to, and are therefore allowable over, the cited documents.

### CONCLUSION

In view of the foregoing, it is respectfully submitted that this application is now in condition for allowance. Applicant courteously solicits allowance of the claims in the form of a Notice of Allowance. Should there be any outstanding issues of patentability following the entry of this response, a telephone interview is respectfully requested to resolve such issues.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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Date: April 9, 2004